

Applicant respectfully asserts that the newly amended claims exclude ferrotungsten as falling within the claim term of “iron powder” since ferrotungsten is more dense than lead. Ferrotungsten has a density greater than lead. Ferrotungsten has a density of 19.3 gm/cm³, while lead has a density of 11.3 gm/cm³. Thus, a claim reciting an iron powder or iron alloy having a density less than lead would exclude ferrotungsten. Applicant respectfully asserts that the claims, as amended, are clear and defined such that ferrotungsten cannot be considered as a possible element since only alloys having a density of less than lead can be considered.

Claim Rejections Under 35 U.S.C. § 102(b)

Claims 1, 7, 8, 13, 14, 19-29 and 33 have been rejected by the PTO under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,399,187 (*Mravic et al.*). The PTO states that *Mravic et al.* discloses a lead free projectile comprising a high density metal powder selected from a group comprising ferrotungsten and a low density metal powder selected from a group comprising zinc, tin and alloys of tin and zinc.

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” MPEP 2131 quoting Verolegal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

As noted previously, the claims recite an iron powder which has a density less than that of lead. Lead has a density of 11.3 gm/cm³ and ferrotungsten has a density of 19.3 gm/cm³. Thus, ferrotungsten is specifically excluded by the present claims and the recited reference actually teaches away from that which is claimed. As noted by the PTO, iron alloys containing tungsten have a high density. Thus, the cited reference does not teach that which is claimed in

the present application. *Mravic et al.* does not teach or suggest the inclusion of an iron powder having a density less than lead.

Claim Rejections Under 35 U.S.C. § 103(a)

Claims 2-6, 10-12, 15-18 and 30-32 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over *Mravic et al.* The PTO states that *Mravic et al.* discloses that which is claimed except for the selection of powder size and the high/low percent ratios which are claimed in the present application. However, the PTO states that the determination of the specific ranges could have been easily determined by one of ordinary skill in the art based on the desired frangibility of the projectile.

Furthermore, claims 19 and 33 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,760,331 (*Lowden*) in view of *Mravic et al.* The PTO states that *Lowden* discloses a frangible projectile formed by cold compacting high density and low density powdered metals. Furthermore, *Lowden* is said to disclose that the low density powdered metals are selected from the group comprising tin and zinc alloys. However, *Lowden* is said not to disclose ferrotungsten.

The determination of obviousness under 35 U.S.C. § 103 is a legal conclusion based on factual evidence. *Burlington Indus., Inc. v. Quigg*, 822 F.2d 1581, 1584, 3 U.S.P.Q.2d 1436, 1439 (Fed. Cir. 1987). Initially, the PTO bears the burden of establishing the *prima facie* case of obviousness. *In re Piasecki*, 745 F.2d 1468, 1472, 223 U.S.P.Q. 785, 788 (Fed Cir. 1984). To establish a *prima facie* case, the PTO must satisfy three requirements. First, the prior art relied upon, coupled with the knowledge generally available in the art at the time of the invention, must contain some suggestion or incentive that would have motivated the skilled artisan to modify a

reference or to combine references. *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). Second, the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. *Amgem, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1209, 18 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1991). Lastly, the prior art reference or combination of references must teach or suggest all the limitations of the claims. See *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970).

In evaluating obviousness, the Federal Circuit made it very clear that one must look to see if "the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have had a reasonable likelihood of success viewed in light of the prior art." *In re Dow Chemical Co. v. American Cyanamid Co.*, 837 F.2d 469, 473, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988). Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure." *Id.*

Applicant does not claim ferrotungsten. Applicant claims an iron powder having a density less than lead. *Mravic et al.* teaches the inclusion of ferrotungsten, which is more dense than lead. As previously stated, lead has a density of 11.3 gm/cm³ and ferrotungsten has a density of 19.3 gm/cm³. Thus, the combined references do not teach or suggest that which is claimed in the present application. Applicant further asserts that the combined applications actually teach away from that which is claimed since *Mravic et al.* teaches the inclusion of an alloy having a density that is greater than lead and not less as is claimed in the present application.

Thus, Applicant respectfully submits that claims 1-34 of the present application are believed to be in a condition for allowance and an early notice to such effect is earnestly solicited.

7/23/02

Date

Respectfully submitted,



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Cherry West

APPENDIX

1. (Amended) A lead free projectile comprising a compacted admixture of iron powder, wherein the iron powder has a density less than lead, and at least one powder selected from tin, zinc and alloys and mixtures thereof.